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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,918	07/24/2001	Suresh Golwalkar	35706.9100	4220

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EXAMINER

ABUTAYEH, MOHAMMAD

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/911,918

Applicant(s)

GOLWALKAR ET AL.

Examiner

Mohammad Abutayeh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-28, 30-35 and 48-52 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6, 7, 12, 16, 17, 19, 22, 29, 36-38, 46 and 47 is/are rejected.
- 7) ☒ Claim(s) 3-5, 8-11, 13-15, 18, 20, 21 and 39-45 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/24/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *Detailed Action*.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 19 recites the limitation "the substrate" in Line 1 and Claim 29 recites the limitation "the photodetector " in Line 1. There is insufficient antecedent basis for both limitations in the mentioned claims.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6, 7, 36-38, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Henson et al. (US Patent No. 5,325,455).

Henson et al. discloses, as in Claim 1, an optical coupler (Figures 1 and 3) for coupling an optoelectronic device (Figures 1 and 3, 48) to an optical fiber (Figure 1, 24), comprising: an electrical connector (Figure 3, 94), an optical transmission medium (Figure 1, 38) disposed proximate the electrical connector; and an encapsulant (Figures 1 and 3, 14) surrounding at least a portion of the connector and at least a portion of the transmission medium.

Henson et al. discloses, as in Claim 2, the optical coupler of Claim 1, wherein the transmission medium comprises fused fibers (Figure 1, 24).

Henson et al. discloses, as in Claim 6, the optical coupler of Claim 1, further comprising guide grooves (Figure 1, 46) configured to receive guide pins (Figure 1, 42) attached to fiber ribbon (Figure 1, 24).

Henson et al. discloses, as in Claim 7, the optical coupler of Claim 1, further comprising a ground plane (Figure 1, 18) formed on a lower portion of the coupler.

Henson et al. discloses, as in Claim 36, a method of forming an optical coupler (Figures 1 and 3), the method comprising the steps of creating electrical connectors (Figure 3, 94); attaching a waveguide to the electrical connectors (Figure 1, 38); and encapsulating (Figures 1 and 3, 14) at least a portion of the electrical connectors and at least a portion of the waveguide.

Henson et al. discloses, as in Claim 37, the method of forming an optical coupler of Claim 36, further comprising the step of forming guides (Figure 1, 46).

Henson et al. discloses, as in Claim 38, the method of forming an optical coupler of Claim 37, wherein the step of forming guides comprises bending a portion of a conductive plate to form a conduit (Figure 1, 54).

Henson et al. discloses, as in Claim 46, the method of forming an optical coupler of Claim 36, further comprising the step of attaching guide sleeves (Figure 1, 44) to a portion of the electrical connectors.

Henson et al. discloses, as in Claim 47, the method of forming an optical coupler of Claim 36, further comprising the step of forming a ground plane (Figure 1, 18) coupled to a portion of the electrical connectors.

5. Claims 12, 16, 17, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Swirhun et al. (US Patent No. 5,631,988).

Swirhun et al. discloses, as in Claim 12, an optical coupler (Figures 1a and 1b) comprising: a waveguide (Figures 1a and 1b, 131); an encapsulant (Figures 1a and 1b, 130) surrounding at least a portion of the waveguide; and at least one guide groove (Figures 1a and 1b, 141) formed in the encapsulant, the at least one guide groove configured to receive a pin (Figure 1a, 140) from a connector attached to a fiber ribbon (Figure 1a, 135).

Swirhun et al. discloses, as in Claim 16, the optical coupler of Claim 12, wherein the waveguide comprises a plurality of optical fibers (Figure 1b, 132) fused together.

Swirhun et al. discloses, as in Claim 17, the optical coupler of Claim 12, wherein the waveguide comprises at least one fiber as shown in Figures 1a and 1b.

Swirhun et al. discloses, as in Claim 22, an optical transmission system comprising the optical coupler of Claim 12 as illustrated in Figure 3.

Allowable Subject Matter

6. Claims 3-5, 8-11, 13-15, 18, 20, 21, and 39-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening

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claims. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose the limitations of the claims in such a manner that a rejection under 35 USC 102 or 35 USC 103 would be proper. The prior art fails to reveal an optical coupler composed of an optical transmission medium and an electrical connector formed within an encapsulant where: the coupled fibers can have a core diameter smaller than 50 microns as described by Claim 3; the electrical connector includes a conductive lead having a first end and a second end disposed about ninety degrees from each other as described by Claim 4, the encapsulant includes silica-filled epoxy material as described by Claim 5, the coupler contains a die attachment material as described by Claim 8, the coupler contains a conductive tape to facilitate coupling as described by Claim 9, or the electrical connector comprises a plurality of conductive plugs within a microelectronic device as described by Claims 10 and 11. The prior art fails to reveal an optical coupler composed of a waveguide formed within an encapsulant that contains a guide groove configured to receive a pin from a connector attached to a fiber ribbon where: the coupler contains an electrical connector formed within the encapsulant as described by Claims 13-15, the encapsulant contains a transfer mold compound as described by Claim 18, the coupler contains a substrate containing electrical connectors formed as electrical traces and conductive plugs as described by Claim 20, or the guide groove is made of a conductive material as described by Claim 21. The prior art fails to reveal a method of making an optical coupler by attaching a waveguide to electrical connectors and encapsulating them where: the electrical connectors are a bent leadframe as described by Claim 39, the

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electrical connectors are a bent conductive leads as described by Claim 40, one end of the waveguide is polished as described by Claim 41, the method includes singulating as described by Claim 42, or the method includes coating one end of the electrical connectors with a conductive material as described by Claims 43-45

7. Claims 23-28, 30-35, and 48-52 are allowed. The following is a statement of reasons for the indication of allowable subject matter: the prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in Claims 23-28 and 30-35, wherein the claimed invention is an optical coupler composed of a waveguide and an electrical connector formed within an encapsulant where a fiber optic cable and a substrate are coupled to it. The prior art fails to teach a combination of all the claimed features as presented in Claims 48-52, wherein the claimed invention is an optical coupler containing a photonics component flip-chip mounted to an electrical connector partially surrounded by an encapsulant.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Abutayeh whose telephone number is 703-605-0726. The examiner can normally be reached on Monday thru Friday 8:00 am - 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on 703-308-4883. The fax

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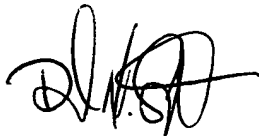
phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 800-786-9199.



MA

January 7, 2003

Mohammad Abutayeh
Examiner
Art Unit 2873



PATENT EXAMINER/PSA
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